inhaler **10**. This makes it possible to preset the voltage curve Uh(t) adapted to the liquid used, so that the heating temperature of the heating body **60**, and thus also the temperature of the capillary passage openings **62**, can be controlled over the vaporization process in accordance with the known vaporization kinetics of the respective liquid, whereby optimum vaporization results can be achieved. The vaporization temperature is preferably in the range between 100° C. and 400° C., further preferably between 150° C. and 350° C., still further preferably between 190° C. and 290° C.

[0097] The heating body **60** can advantageously be made from portions of a wafer with thin film layer technology, which comprises a layer thickness preferably less than or equal to 1000 μm, further preferably 750 μm, still further preferably less than or equal to 500 μm. Surfaces of the heating body **60** may advantageously be hydrophilic. The outlet side **64** of the heating body **60** may advantageously be microstructured or comprise micro grooves.

[0098] The vaporizer device **1** is adjusted to dispense a quantity of liquid preferably in the range between 1 μl and 20 μl, further preferably between 2 μl and 10 μl, still further preferably between 3 μl and 5 μl, typically 4 μl per puff of the consumer. Preferably, the vaporizer device **1** can be adjustable with respect to the amount of liquid/vapor per puff, i.e. per puff duration from 1 s to 3 s.

[0099] In the following, the sequence of the vaporization process is explained by way of example.

[0100] In an initial state, the voltage source **71** or the energy storage **14** is switched off for the heating process.

[0101] To vaporize liquid **50**, voltage source **14**, **71** for heating body **60** is activated. The voltage Uh is adjusted so that the evaporation temperature in the heating body **60** and thus in the passage openings **62** is adapted to the individual vaporization behavior of the liquid mixture used. This prevents the risk of local overheating and thereby the formation of pollutants.

[0102] In particular, undesirable differential vaporization of a liquid mixture can also be counteracted or avoided. A liquid mixture could otherwise lose components prematurely due to different boiling temperatures in the course of a sequence of vaporization processes, in particular "puffs", before the reservoir **18** of the liquid **50** is completely emptied, which could result in undesirable effects during operation, such as a lack of consistency of dosage for a user, in particular for a pharmaceutically active liquid.

[0103] Once an amount of liquid equal to or related to the volume of the passage openings **62** is vaporized, the heating voltage source **71** is deactivated. Since the liquid properties and quantity are advantageously known exactly and the heating body **60** comprises a measurable temperature-dependent resistance, this point in time can be determined or controlled very precisely. The energy consumption of the vaporizer device **1** can therefore be reduced compared to known devices, since the required vaporization energy can be introduced in a more metered and thus more precise manner.

[0104] After completion of the heating process, the passage openings **62** are predominantly or completely emptied. The heating voltage **71** is then kept switched off until the passage openings **62** are filled again by means of liquid refeed through the wick structure **19**. As soon as this is the case, the next heating cycle can be started by switching on the heating voltage **71**.

[0105] The driving frequency of the heating body **60** generated by the heating voltage source **71** is generally advantageously in the range of 1 Hz to 50 kHz, preferably in the range of 30 Hz to 30 kHz, still more advantageously in the range of 100 Hz to 25 kHz.

[0106] The frequency and duty factor of the heating voltage Uh for the heating body **60** are advantageously adapted to the natural oscillation or natural frequency of the bubble oscillations during bubble boiling. Advantageously, the period 1/f of the heating voltage can therefore be in the range between 5 ms and 50 ms, further advantageously between 10 ms and 40 ms, still further advantageously between 15 ms and 30 ms, and for example 20 ms. Depending on the composition of the vaporized liquid **50**, frequencies other than those mentioned can be optimally adapted to the natural oscillation or natural frequency of the bubble oscillations.

[0107] Furthermore, it has been found that the maximum heating current generated by the heating voltage Uh should preferably be no more than 7 A, further preferably no more than 6.5 A, still further preferably no more than 6 A, and optimally in the range between 4 A and 6 A, in order to ensure concentrated vapor while avoiding overheating.

[0108] The feed rate of the wick structure **19** is again optimally adapted to that of the vaporization rate of the heating body **60**, so that sufficient liquid **50** can be refed at any given time and running empty of the region in front of the heating body **60** is avoided.

[0109] The vaporizer device **1** is preferably based on MEMS technology, in particular made of silicon, and is therefore advantageously a micro-electro-mechanical system.

[0110] According to the above, it is advantageously proposed a layered structure consisting of a heating body **60** based on Si, which is advantageously planar at least on the inlet side **61**, and one or more underlying capillary structures **19** with advantageously different pore sizes. The wick structure **19** arranged directly on the inlet side **61** of the heating body **60** prevents the formation of bubbles on the inlet side **61** of the heating body **60**, since gas bubbles prevent a further feeding effect and at the same time cause (local) overheating of the heating body **60** due to a lack of cooling by liquid flowing in.

[0111] The liquid reservoir **18** can advantageously be at least partially filled by a liquid buffer element **51**. The liquid buffer element **51** is advantageously arranged in contact with the wick structure **19**. The liquid buffer element **51** is arranged to store liquid **50** from the liquid reservoir **18** and to transport it to the wick structure **19**. This enables the wick structure **19** to be reliably supplied with liquid **50** from the liquid reservoir **18** irrespective of position or orientation. Like the wick structure **19**, the liquid buffer element **51** can consist of one of the porous and/or capillary liquid-conducting materials described.

[0112] FIG. **7** shows a schematic cross section of a consumption unit **17** according to one embodiment of the invention.

[0113] The liquid reservoir **18** comprises a circular cross-section. Along the longitudinal axis, perpendicular to the figure plane, the jacket surface **104** extends with the wall **101** and the vent **5** with the flow channel **8**. The vent **5** advantageously comprises a circular cross-section. The diameter of the vent **5** is smaller than the diameter of the liquid reservoir **18**, which is advantageously defined by the diameter of the base surface **105**. Advantageously, the vent